EXHIBIT A



PENDING CLAIMS IN APPLICATION SERIAL NO: 08/475,470 PENNIE & EDMONDS DOCKET NO: 7639-077

- 1. A recombinant adeno-associated virus vector, which comprises:
 - a) at least a portion of the adeno-associated virus genome; and
 - b) at least one eurkaryotic based nucleic acid sequence that encodes a wild-type gene product controlled by a eukaryotic based *cis*-acting

regulatory sequence heterologous to the wild-type gene product, said virus vector having the property of regulating cell specific expression of said nucleic acid sequence or nucleic acid sequences upon stable transduction of a target mammalian cell.

- 4. A recombinant adeno-associated virus vector of Claim 1 wherein the mammalian cell is a human immune cell.
- 7. A recombinant adeno-associated virus vector of Claim 4 wherein said eukaryotic *cis*-acting regulatory sequence is chosen from the region located from about hypersensitive site I to about hypersensitive site IV, in association with the human globin gene cluster.
- 8. A recombinant adeno-associated virus vector of Claim 7 wherein said eukaryotic *cis*-acting regulatory sequence is chosen from the region located within the group of *cis*-acting regulatory sequences consisting of hypersensitive site I, hypersensitive site II, hypersensitive site III, hypersensitive site IV, and hypersensitive site VI, in association with the human globin gene.
- 9. A recombinant adeno-associated virus vector of Claim 4 wherein said nucleic acid sequence or nucleic acid sequences encodes at least one human gene protein, chosen from the human globin gene cluster.
- 10. A recombinant adeno-associated virus vector of Claim 48 wherein said eukaryotic *cis*-acting regulatory sequence is chosen from the region located from about

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hypersensitive site I to about hypersensitive site VI, in association with the human globin gene cluster.

- 11. A recombinant adeno-associated virus vector of Claim 10 wherein said eukaryotic *cis*-acting regulatory element is chosen from the region located within the group of *cis*-acting regulatory elements consisting of hypersensitive site I, hypersensitive site II, hypersensitive site III, hypersensitive site IV, and hypersensitive site VI, in association with the human globin gene cluster.
- 12. A recombinant adeno-associated virus vector of claim 48 wherein said nucleic acid sequence or nucleic acid sequences encodes at least one human gene protein, chosen from the human globin gene cluster.
- 16. A recombinant adeno-associated virus vector of Claim 4 wherein said *cis*-acting regulatory sequence comprises hypersensitive site II, associated with the human globin gene cluster.
- 17. A recombinant adeno-associated virus vector of Claim 4 wherein said nucleic acid sequence encodes a human globin protein ^Agamma globin.
- 19. A recombinant adeno-associated virus vector of Claim 4 wherein said immune cell is chosen from the group consisting of a human hemapoietic stem cell, a human myeloid progenitor cell and a human erythroid progenitor cell.
- 20. A recombinant adeno-associated virus vector of Claim 9 wherein said target immune cell is K562.
- 21. A recombinant adeno-associated virus vector of Claim 48 wherein said mammalian cell is an immune cell chosen from the group consisting of a human hamatopoietic stem cell, a human myeloid progenitor cell and a human erythroid progenitor cell.



- 25. A recombinant adeno-associated virus vector of Claim 17 wherein said target immune cell is chosen from the group consisting of a human hematopoietic stem cell, a human myeloid progenitor cell and a human erythroid progenitor cell.
- 26. A recombinant adeno-associated vector of Claim 17 wherein said target immune cell is K562.
 - 27. A recombinant adeno-associated virus vector, which comprises:
 - a) at least a portion of the adeno-associated virus genome; and
 - b) a eukaryotic based nucleic acid sequence that encodes a wild-type gene product controlled by a eukaryotic based *cis*-acting regulatory sequence heterologous to the wild-type gene product,

said virus vector having the property of regulatory cell specific expression of said nucleic acid sequence or nucleic acid sequences upon stable transduction of a primary human hematopoietic cell.

- 28. A recombinant adeno-associated virus vector of Claim 27 wherein said eukaryotic *cis*-acting regulatory sequence is chosen from the region located from about hypersensitive site I to about hypersensitive site VI, in association with the human globin gene cluster.
- 29. A recombinant adeno-associated virus vector of Claim 28 wherein said eukaryotic *cis*-acting regulatory element is chosen from the region located within the group of *cis*-acting regulatory elements consisting of hypersensitive site I, hypersensitive site II, hypersensitive site III, hypersensitive site IV, and hypersensitive site VI, in association with the human globin gene cluster.
- 30. A recombinant adeno-associated virus vector of Claim 29 wherein said *cis*-acting regulatory sequence comprises hypersensitive site IV, hypersensitive site III and hypersensitive site III.
- 31. A recombinant adeno-associated virus vector of Claim 27 wherein said nucleic acid sequence encodes a human globin protein, chosen from the human globin gene cluster.

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- 33. A recombinant adeno-associated virus vector of Claim 27 which comprises a DNA sequence encoding a wild-type Fanconi anemia C complementing protein.
- 39. A recombinant adeno-associated virus vector of Claim 27 which comprises a DNA sequence encoding a wild-type Factor IX protein.
- 46. The recombinant adeno-associated virus vector of Claim 1 in which the portion of the adeno-associated virus genome comprises at least those nucleotide sequences encoding the inverted terminal repeats.
- 47. The adeno-associated virus vector of Claim 27 in which the portion of the adeno-associated virus genome comprises at least those nucleotide sequences encoding the inverted terminal repeats.
 - 48. A recombinant adeno-associated virus vector comprising:
 - a) at least a portion of the adeno-associated virus genome;
 - b) a eukaryotic based nucleic acid sequence that encodes a wild-type gene product controlled by a eukaryotic based *cis*-acting regulatory sequence; and
 - c) lacking a selectable marker,

 vector having the property of regulatory cell specific expre

said virus vector having the property of regulatory cell specific expression of said nucleic acid sequence or nucleic acid sequences upon stable transduction of a mammalian cell.

